of the methods, apparatuses, and/or systems described herein. However, various changes, modifications, and equivalents of the methods, apparatuses, and/or systems described herein will be apparent to one of ordinary skill in the art. The sequences of operations described herein are merely examples, and are not limited to those set forth herein, but may be changed as will be apparent to one of ordinary skill in the art, with the exception of operations necessarily occurring in a certain order. Also, descriptions of functions and constructions that are well known to one of ordinary skill in the art may be omitted for increased clarity and conciseness.

[0041] The features described herein may be embodied in different forms, and are not to be construed as being limited to the examples described herein. Rather, the examples described herein have been provided so that this disclosure will be thorough and complete, and will convey the full scope of the disclosure to one of ordinary skill in the art.

[0042] Spatially relative terms, such as "above," "upper," "below," and "lower" and the like, may be used herein for ease of description to describe one element's relationship to another element(s) as shown in the figures. It will be understood that the spatially relative terms are intended to encompass different orientations of the device in use or operation in addition to the orientation depicted in the figures. If the device in the figures is turned over, elements described as "above," or "upper" other elements would then, for example, be oriented "below," or "lower" the other elements or features. Thus, the term "above" can encompass both the above and below orientations depending on a particular direction of the figures. The device may be otherwise oriented (rotated 90 degrees or at other orientations) and the spatially relative descriptors used herein may be interpreted accordingly.

[0043] The terminology used herein is for describing particular embodiments only and is not intended to be limiting of the present inventive concept. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises," and/or "comprising" when used in this specification, specify the presence of stated features, integers, steps, operations, members, elements, and/or groups thereof, but do not preclude the presence or addition of one or more other features, integers, steps, operations, members, elements, and/or groups thereof.

[0044] In addition, in the present specification, a first lens refers to a lens closest to an object (or a subject), while a fifth lens refers to a lens closest to an imaging plane (or an image sensor). In addition, all of radii of curvature and thicknesses of lenses, a TTL, an ImgH (½ of a diagonal length of the imaging plane), and focal lengths are represented by millimeters (mm). Further, thicknesses of the lenses, gaps between the lenses, and the TTL are distances in optical axes of the lenses. Further, in a description for shapes of the lenses, the meaning that one surface of a lens is convex is that an optical axis portion of a corresponding surface is convex, and the meaning that one surface of a lens is concave is that an optical axis portion of a corresponding surface is concave. Therefore, although it is described that one surface of a lens is convex, an edge portion of the lens may be concave. Likewise, although it is described that one surface of a lens is concave, an edge portion of the lens may be convex.

[0045] In addition, an object-side surface of each lens refers to a surface of the corresponding lens closest to an object, while an image-side surface of each lens refers to a surface of the corresponding lens closest to the imaging plane.

[0046] An optical imaging system may include an optical system including a plurality of lenses. The optical system of the optical imaging system may, for example, include five lenses having refractive powers. However, the optical imaging system is not limited to including only the lenses having the refractive power. The optical imaging system may, for example, include a stop for controlling an amount of incident light. In addition, the optical imaging system may further include an infrared cut-off filter filtering infrared light. Further, the optical imaging system may include an image sensor (that is, an imaging device) converting an image of a subject incident thereto through the optical system into electrical signals. Further, the optical imaging system may include a gap maintaining member adjusting a gap between lenses.

[0047] First to fifth lenses may be formed of materials having a refractive index different from that of air. The first to fifth lenses may, for example, be formed of plastic or glass. At least one of the first to fifth lenses may have an aspherical shape. As an example, only the fifth lens of the first to fifth lenses may have the aspherical shape. In addition, at least one surface of all of the first to fifth lenses may be aspherical. Here, an aspherical surface of each lens may be represented by the following Equation 1:

$$Z = \frac{cr^2}{1+\sqrt{1-(1+k)c^2r^2}} + Ar^4 + Br^6 + Cr^8 + Dr^{10} + Er^{12} + Fr^{14} + Gr^{16} + Hr^{18} + Jr^{20}. \quad \text{[Equation 1]}$$

[0048] In Equation 1, c is the inverse of a radius of curvature of the lens, k is a conic constant, r is a distance from a certain point on an aspherical surface of the lens to an optical axis, A to J are aspherical constants, and Z (or SAG) is a distance between the certain point on the aspherical surface of the lens at the distance Y and a tangential plane meeting the apex of the aspherical surface of the lens.

[0049] An optical imaging system may include five lenses, a filter, an image sensor, and a stop. Next, the above-mentioned components will be described.

[0050] The first lens may have refractive power. The first lens may, for example, have a positive refractive power.

[0051] At least one surface of the first lens may be convex. An object-side surface of the first lens may, for example, be convex.

[0052] The first lens may have an aspherical surface. Both surfaces of the first lens may, for example, be aspherical. The first lens may be formed of a material having high light transmissivity and excellent workability. The first lens may, for example, be formed of plastic. However, a material of the first lens is not limited to plastic. The first lens may, for example, be formed of glass.

[0053] The second lens may have refractive power. The second lens may, for example, have a negative refractive power.

[0054] The second lens may have a meniscus shape. An object-side surface of the second lens may, for example, be concave.